

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1) (Currently Amended) A method for determining, in a stratified medium whose physical properties are known or estimated, at least one zone where an interface between a fluid in place in the medium and a flushing fluid, of known different viscosities and densities, injected in the medium, moves in a stationary manner, in order to simplify construction of a model simulating the flows in the medium, characterized in that it comprises the following stages:

- considering an *a priori* interface form, assuming that the fluid displacements at any point thereof are stationary,
- determining the pressure field on either side of the *a priori* interface,
- iteratively changing the form of the interface until the pressures on either side of at least part of the interface become equal at any point of this part, and
- assigning mean hydrodynamic properties uniformly to each zone of the medium delimited by each interface part, when said equalization is reached,
- determining the form of at least one zone of the medium delimited by a stationary displacement interface, which corresponds to different values of the flushing fluids viscosity, and
- selecting the viscosity of the flushing fluid for which the stationary

displacements in said medium are optimized.

2) (Original) A method as claimed in claim 1, characterized in that, for lack of obtaining a pressure equalization on either side of the interface along the latter, the interface is segmented into several parts and the form of these different parts is modified iteratively and separately, until a pressure equalization is obtained on either side thereof, the extent of each interface part, when said equalization is reached, delimiting a favourable zone to which mean hydrodynamic properties are uniformly assigned.

3) (Canceled).

4. (New) A method for optimizing the recovery of a hydrocarbon fluid in place in a stratified hydrocarbon reservoir, comprising constructing a reservoir model of the stratified hydrocarbon reservoir, characterized in that it comprises the following stages:

a) selecting at least one layer of the stratified hydrocarbon reservoir where an interface between the fluid in place and a flushing fluid moves in a stationary manner, by:

- constructing an *a priori* interface form, assuming that the hydrocarbon fluid displacements at any point thereof are stationary,
- determining the pressures field on either side of the *a priori* interface,
- iteratively changing the form of the interface until the pressures on either side of at least part of the interface become equal at any point of this part,

b) modifying the said reservoir model by assigning mean hydrodynamic

properties uniformly to each zone of the hydrocarbon reservoir delimited by each Interface part, when said equalization is reached;

c) determining a viscosity of the flushing fluid which allows to optimize the recovery, by selecting the viscosity which optimize the stationary displacements in said hydrocarbon reservoir, by using the said model; and

d) injecting a flushing fluid having said viscosity into the stratified hydrocarbon reservoir to drive the hydrocarbon fluid to be recovered.

5. (New) A method as claimed in claim 4, wherein, for lack of obtaining a pressure equalization on either side of the interface along the latter, the interface is segmented into several parts and the form of these different parts is modified iteratively and separately, until a pressure equalization is obtained on either side thereof, the extent of each interface part, when said equalization is reached, delimiting a favourable layer to which mean hydrodynamic properties are uniformly assigned.